

## REMARKS

In the Office Action mailed September 26, 2008, claims 1-42 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent App. Pub. 200410047477 A1 ("Bank"). Claims 1-42 were also rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-42 of over U.S. Patent No. 6,726,626 ("Hossack").

Applicants respectfully request reconsideration of the rejections of claims 1-42. *New remarks are provided in italics.*

*Claim 1 has been amended with the limitations of dependent claims 2 and 4. Claim 16 was likewise amended with the limitations of claims 17 and 19. Claim 35 was amended with the limitations from claim 37. Claim 39 was amended with the limitations from claim 41. Since these limitations were previously examined, no new search is needed. If the Examiner believes a new search is needed, the Examiner is requested to make the next Office Action non-final as the limitations are from previously examined claims.*

Independent claim 1 recites, *inter alia*, identifying the transducer circuit having an ultrasonic transducer that includes at least one reactance characteristic and an operating frequency range, and at least one signal path that is electrically coupled to the ultrasonic transducer, the at least one signal path including a receive signal path.

Bank does not disclose or suggest identifying the transducer circuit having an ultrasonic transducer that includes at least one reactance characteristic and an operating frequency range, and at least one signal path that is electrically coupled to the ultrasonic transducer, the at least one signal path including a receive signal path. Instead, Bank teaches power delivery systems for parametric loudspeakers. (para. [0001]). Bank does not teach any circuit with a receive signal path.

The Office Action cites to paragraphs [0002] and [0087] of Bank for "reception" or "receive signals." Paragraph [0002] discusses production and modulation of an ultrasonic carrier frequency with an audio input signal to generate an audible reproduction of the audio

input signal. Paragraph [0087] teaches isolation of an AC power line from a load circuit. These paragraphs teach *generation* of an audio signal and *isolation* of a power line, not a *receive* signal path that is electrically coupled to the ultrasonic transducer, as recited in the claim.

One of ordinary skill in the art would not have electrically coupled a receive signal path to an ultrasonic transducer in view of Bank because Bank is directed to *loudspeaker* technology, and thus audio signal *generation*, not reception.

*In response, the Examiner alleges that, while in the form of a speaker, the transducer includes a receive signal path as the speaker functions by converting electrical energy into ultrasonic vibratory signals. The electric coupling is understood to be a receive path as the receive signal and its associated path are not otherwise characterized by the claims. The Examiner further notes that the remarks are directed to signal reception, but the claims merely receive signals.*

*However, Bank, et al. do not disclose a receive signal path that is electrically coupled to the ultrasonic transducer. Bank, et al. have a path for electrically coupling the electrical energy to the transducer for conversion into ultrasonic vibratory signals. This path is for transmit signals. The electrical signals applied to the path are for transmitting from the transducer. Bank, et al. do not provide a path for receive signals, so do not provide a receive signal path.*

*To further clarify this distinction, the limitations of claims 2 and 4 have been added to claim 1. Claim 1 recites both a transmit signal path and a receive signal path where the balancing circuit is inserted into the receive signal path. Bank, et al. provide one path coupling to the transducer. The path is a transmit signal path. The transducer transmits using signals provided on the transmit signal path.*

*Even accepting the Examiner's argument that this path of Bank, et al. is a receive signal path, there is not a second path. Claim 1 recites transmit and receive signal paths. Bank, et al. do not provide two paths, one for transmit signals and one for receive signals. In Bank, et al., any balancing is done on the transmit signal path, not the receive signal path.*

A similar argument as presented above with respect to claim 1 also applied to independent claims 16,31,33,35, and 39. *Claim 16 recites transmit and receive signal paths. Claims 31, 33, 35, and 39 recite receive signal paths.*

Independent claim 31 also recites, *inter alia*, isolating the negative capacitor from the ultrasonic transducer during a transmission of the transducer circuit using a plurality of switches.

Bank does not disclose or suggest isolating the negative capacitor from the ultrasonic transducer during a transmission of the transducer circuit using a plurality of switches. Instead, Bank teaches four switching power devices 120a-120d in a Class D amplifier with an H-bridge amplifier. (para. [0002]). The four switching power devices 120a-120d switch *power* received from a DC power source line 122 to create a pulse width modulated AC signal with a particular frequency (i.e. the "switching frequency"). (see, e.g., paras. [0051][0057]). The switching power devices do not *isolate* the negative capacitor from the ultrasonic transducer during a transmission of the transducer circuit, as recited in the claim.

One of ordinary skill in the art would not have isolated a negative capacitor from an ultrasonic transducer during a transmission of a transducer circuit using a plurality of switches in view of Bank because Bank is directed to improving power efficiency in a parametric loudspeaker system, and isolating a negative capacitor from Bank's transducer would decrease power efficiency by removing the counterbalancing reactive load.

*The Examiner did not further address the remarks above. The switch devices do not isolate a negative capacitor.*

A similar argument as presented above with respect to claim 31 also applies to independent **claim 33**.

*Claim 35 recites a receive signal path and further recites isolating the balancing circuit from the plurality of ultrasonic transducers during a transmission of the transducer circuit. As discussed above, Bank, et al. do not do not provide both a receive signal path and transmission. The transducer of Bank, et al. has one path for transmitting and any balancing circuit is applied during the transmission of the transducer, not isolated from the transmission. Claim 39 is allowable for similar reasons.*

Dependent claims 3, 5-15, 18, 20-30, 32, 34, 36, 38, 40, and 42 each depend from one of the above independent claims and are allowable for at least the same reasons as their respective base claim. Further features patentably distinguish from Bank, et al.

Claims 8, 11, 23 and 26 recite features that fall under the second argument for claim 31 above.

#### **Nonstatutory Obviousness-Type Double Patenting Rejection**

*In order to expedite issuance of a patent based on the above captioned application, a Terminal Disclaimer is enclosed. The Terminal Disclaimer conforms with 37 C.F.R. § 1.321 (b). The assignee of the above referenced application and U.S. Patent Nos. 6,726,626 is Siemens Medical Solutions USA, Inc. By filing the Terminal Disclaimer to expedite issuance, Applicants are not admitting that any of the claims of the above referenced application are obvious in light of the claims of either of these patents.*

#### **CONCLUSION**

Applicant respectfully submits that all of the pending claims are in condition for allowance and seeks early allowance thereof.

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